

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/002348

International filing date (day/month/year)  
03.06.2004

Priority date (day/month/year)  
12.07.2003

International Patent Classification (IPC) or both national classification and IPC  
G01P21/00, G01P15/16, B60K41/00, F16H59/48, B60T8/00

Applicant  
TOROTRAK (DEVELOPMENT) LIMITED

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/002348

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

**see separate sheet**

Re Item V.

The following documents are referred to in this communication:

- D1 : EP 1 013 523 A (TOYOTA MOTOR CO LTD) 28 June 2000 (2000-06-28)  
D2 : EP 1 085 312 A (AVL LIST GMBH) 21 March 2001 (2001-03-21)  
D3 : WO 99/46604 A (BOSCH GMBH ROBERT ; HECKMANN HANS (DE);  
WINNER HERMANN (DE)) 16 September 1999 (1999-09-16)  
D4 : DE 43 28 893 A (HITACHI LTD) 10 March 1994 (1994-03-10)

1. Clarity

1.1 The application does not meet the requirements of Article 6 PCT, because claims 1,3,7,8,10 are not clear.

Claims 1,3,8,10 distinguish the two acceleration signals as *being obtained by measurement* and *being obtained "based upon net driving force"*. This gives the impression, that the *net driving force* is obtained without measurement and it is not clear where said force is known from. Furthermore it is not clear, what the vague expression *based upon* means.

1.2 Claims 1,8 refer to *a method / a device for determining acceleration of a motor vehicle*. This designation gives the impression, that a general method/device is disclosed, for measuring vehicle acceleration in all directions and for all purposes (e.g. slip control, traction control, suspension control, crash detection,...).

The description however discloses only the determination of a longitudinal acceleration in the context of vehicle powertrain control. Therefore, the actual independent claims are too broad and are therefore not supported by the description as required by Article 6 PCT.

1.3 Claims 1,8 further leave it open which of the signals is high pass filtered and which of the signals is low pass filtered. The claims therefore **lack the essential feature** (see description: page 1, paragraphs 2-4 and page 4, paragraph 2) that it is the *time lag introduced by the low pass filtered acceleration sensor signal*, that needs to be *corrected by addition of a high pass filtered transmission/brake force based acceleration signal*.

Without these features the adding of two respectively filtered acceleration signals would only consist of the juxtaposition of well known elements which would not be inventive. The claims are thus not clear.

1.4 The method of *high pass filtering* of dependent claim 7 is not clear and also lacks support by the description.

1.5 Some of the features (*..adding the two filtered acceleration signals..*) in the apparatus claim 8 relate to the category method rather than clearly defining the apparatus in terms of structural features. The claim thus lacks clarity (Article 6 PCT).

## 2 Novelty / Inventive step

An opinion on novelty and inventive step can only provisionally be given, as far as the claims can be interpreted regarding the above mentioned lack of clarity.

2.1 Document D1 (see paragraphs [0040],[0041],[0051],[0055],[0056] ), which is considered to represent the most relevant state of the art, discloses (the references in parenthesis applying to this document) a method of determining acceleration of a motor vehicle, said method comprising:

- obtaining a low pass filtered acceleration signal (figure 5, step 151) *by measurement*,
- obtaining a further acceleration signal *based upon net driving force*.

From this, the subject-matter of independent claim 1 differs in that:

- the two filtered acceleration signals are added.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as:

To provide an acceleration signal as input signal for a vehicle power train, which signal having improved low frequency noise and time lag properties.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: Document D1 uses the driving force related acceleration signal only to judge **normal functioning** of an acceleration sensor. It does not mention a time lag of the sensor being a problem for its (brake) control purposes. It does not mention a correction of the sensor signal by adding a signal derived from net driving force. It does not mention the use of the acceleration signal as input signal for a vehicle power train.

It appears not obvious for the skilled person, to use a signal based on so many model assumptions as the net drive force to correct a sensor signal for which well established

precise sensors are available.

D2 and D3 (see passages as cited in the search report) make use of added low pass and high pass filtered acceleration signals, but in other contexts and for other purposes. As far as can be said regarding the above mentioned lack of clarity, these documents also do not appear to prejudice novelty or inventive step of clarified claims.

2.2 Apparatus claim 8 as comprising the apparatus features corresponding to the method features of new and inventive claim 1 is also considered to be new and inventive.

2.3 Claims 2-7 resp. claims 9,10 are dependent on claims 1 resp. 8 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

### **3 Industrial applicability**

The claimed invention meets the requirement of industrial applicability of Article 33 (4) PCT.